IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Previously Presented) A combustion vibration estimating apparatus that estimates possibility of combustion vibration to occur using data at present, and that outputs a result estimated thereby for controlling a combustor not to cause the combustion vibration, the combustion vibration estimating apparatus comprising:

a combustion vibration region estimating unit that estimates possibility of combustion vibration to occur using a mathematical model; and

an outputting unit which outputs an estimation result by the combustion vibration region estimating unit, wherein

the mathematical model representing internal pressure variation employs plant data and weather data as variables, and the combustion vibration region estimating unit estimates a possible combustion vibration-prone region and a possible combustion vibration-less prone region based on the mathematical model, and outputs the estimated results to the outputting unit.

Claim 2 (Previously Presented) A combustion vibration estimating apparatus that estimates possibility of combustion vibration to occur using data at present, and that outputs a result estimated thereby for controlling a combustor not to cause the combustion vibration, the combustion vibration estimating apparatus comprising:

an inputting unit which inputs plant data, weather data and limiting value of internal pressure variation,

an internal pressure variation characteristic grasping unit which sets up a mathematical model representing internal pressure variation of a combustor using the inputted plant data and weather data as variables,

a combustion vibration region estimating unit that estimates possibility of combustion vibration to occur using the mathematical model by applying the limiting value of the internal pressure variation to the mathematical model to estimate a possible combustion vibration-prone region; and

an outputting unit which outputs the possible combustion vibration-prone region estimated by the combustion vibration region estimating unit.

Claim 3 (Previously Presented) The combustion vibration estimating apparatus according to claim 2, further comprising:

a database which stores the plant data and the weather data inputted by the inputting unit into a time series, wherein

the internal pressure variation characteristic grasping unit obtains data from the database to set up a mathematical model representing the internal pressure variation of the combustor.

Claim 4 (Previously Presented) A combustion vibration estimating apparatus that estimates possibility of combustion vibration to occur using data at present, and that outputs a result estimated thereby for controlling a combustor not to cause the combustion vibration, the combustion vibration estimating apparatus comprising:

an inputting unit which inputs plant data and weather data,

an internal pressure variation estimating unit which estimates internal pressure variation of a combustor from the plant data and weather data; and

an outputting unit which outputs internal pressure variation estimation result estimated by the internal pressure variation estimating unit.

Claim 5 (Previously Presented) The combustion vibration estimating apparatus according to claim 4, further comprising a database which stores the plant data and weather data inputted by the inputting unit, wherein the internal pressure variation estimating unit estimates estimated value of the internal pressure variation by data of latest time stored in the database.

Claim 6 (Original) A combustion vibration estimating apparatus wherein a mathematical model for explaining internal pressure variation and NOx discharge amount is constructed from plant data and weather data, a combustion vibration-prone to be generated region and a combustion vibration-less prone to be generated region are obtained based on the constructed mathematical model and are output.

Claim 7 (Original) A combustion vibration estimating apparatus comprising:

an inputting unit which inputs limiting values of plant data, weather data and internal pressure variation, as well as a restricting value of NOx,

an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the input plant data and weather data,

a NOx discharge amount characteristic grasping unit which makes an NOx discharge amount into a mathematical model from the input plant data and weather data,

a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, and applies a restricting value of the NOx to the mathematical model obtained by the NOx discharge amount characteristic grasping unit, thereby obtaining a region where

the NOx discharge amount is equal to or less than the restricting value and the combustion vibration is less prone to be generated, and

an outputting unit which outputs a safe region estimation result by the safe region estimating unit.

Claim 8 (Original) A combustion vibration estimating apparatus wherein a mathematical model for explaining internal pressure variation, NOx and a CO discharge amount is constructed from plant data and weather data, a combustion vibration-prone to be generated region and a combustion vibration-less prone to be generated region are obtained based on the constructed mathematical model and are output.

Claim 9 (Currently Amended) ~~The~~ A combustion vibration estimating apparatus comprising:

an inputting unit which inputs limiting values of plant data, weather data and internal pressure variation, as well as restricting values of NOx and CO,

an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the input plant data and weather data,

a NOx discharge amount characteristic grasping unit which makes an NOx discharge amount into a mathematical model from the input plant data and weather data,

a CO discharge amount characteristic grasping unit which makes an CO discharge amount into a mathematical model from the input plant data and weather data,

a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, applies a restricting value of the NOx to the mathematical model obtained by

the NOx discharge amount characteristic grasping unit, and applies a restricting value of the CO to the mathematical model obtained by the CO discharge amount characteristic grasping unit, thereby obtaining a region where the NOx discharge amount and the CO discharge amount are equal to or less than the restricting value and the combustion vibration is less prone to be generated, and

an outputting unit which outputs a safe region estimation result by the safe region estimating unit.

Claim 10 (Original) A combustion vibration estimating apparatus comprising:

an inputting unit which inputs limiting values of plant data, weather data and internal pressure variation, as well as restricting values of NOx and CO,

a focus setting unit which selects data used for making a mathematical model from the input plant data and weather data,

an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the selected plant data and weather data,

a discharge amount characteristic grasping unit which makes NOx and CO discharge amounts into a mathematical model from the selected plant data and weather data,

a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, applies restricting values of the NOx and CO to the mathematical models obtained by the NOx and CO discharge amount characteristic grasping unit, thereby obtaining a region where the NOx discharge amount and the CO discharge amount are equal to or less than the restricting value and the combustion vibration is less prone to be generated, and

an outputting unit which outputs a safe region estimation result by the safe region estimating unit.

Claim 11 (Original) The combustion vibration estimating apparatus according to claim 10, wherein the focus setting unit selects the plant data and weather data input from the inputting unit based on a region or a setting mode designated by the inputting unit.

Claim 12 (Original) A combustion vibration estimating apparatus comprising:

an inputting unit which inputs limiting values of plant data, weather data and internal pressure variation, as well as restricting values of NOx and CO,

a focus setting unit which selects data used for making a mathematical model from the input plant data and weather data,

an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the selected plant data and weather data,

a discharge amount characteristic grasping unit which makes NOx and CO discharge amounts into a mathematical model from the selected plant data and weather data,

a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, applies restricting values of the NOx and CO to the mathematical models obtained by the NOx and CO discharge amount characteristic grasping unit, thereby obtaining a region where the NOx discharge amount and the CO discharge amount are equal to or less than the restricting value and the combustion vibration is less prone to be generated,

a proposed adjustment generating unit which obtains a point to be measured next, using a safe region estimation result by the safe region estimating unit, and

an outputting unit which outputs a safe region estimation result by the safe region estimating unit and a point to be measured by the proposed adjustment generating unit.

Claim 13 (Original) The combustion vibration estimating apparatus according to claim 12, wherein the focus determining unit determines a next focus based on the mathematical model obtained based on plant data and weather data selected by determination of a last focus.

Claim 14 (Previously Presented) A plant comprising:

a combustor, and

a combustion vibration estimating apparatus that estimates possibility of combustion vibration to occur using data at present, and that outputs a result estimated thereby for controlling a combustor not to cause the combustion vibration, the combustion vibration estimating apparatus using a mathematical model which represents internal pressure variation using plant data and weather data as variables, and estimating and outputting a possible combustion vibration-prone region and a possible combustion vibration-less prone region based on the mathematical model.

Claim 15 (Previously Presented) A plant comprising:

a combustor, and

a combustion vibration estimating apparatus that estimates possibility of combustion vibration to occur using data at present, and that outputs a result estimated thereby for controlling a combustor not to cause the combustion vibration, the combustion vibration estimating apparatus including:

an inputting unit which inputs plant data, weather data and

limiting values of internal pressure variation obtained with combustion in the combustor;

an internal pressure variation characteristic grasping unit which sets up a mathematical model representing internal pressure variation of a combustor using the plant data and weather data inputted as variables;

a combustion vibration region estimating unit that estimates possibility of combustion vibration to occur using the mathematical model by applying the limiting value of the internal pressure variation to the mathematical model to estimate a possible combustion vibration-prone region; and

an outputting unit which outputs the possible combustion vibration-prone region estimated by the combustion vibration region estimating unit.

Claim 16 (Previously Presented) The plant according to claim 15, wherein the combustion vibration estimating apparatus further comprising:

a database which stores the plant data and the weather data inputted by the inputting unit into a time series, wherein

the internal pressure variation characteristic grasping unit obtains data from the database to set up a mathematical model representing the internal pressure variation of the combustor.

Claim 17 (Previously Presented) A plant comprising:

a combustor; and

a combustion vibration estimating apparatus that estimates possibility of combustion vibration to occur using data at present, and that outputs a result estimated thereby for controlling a combustor not to cause the combustion vibration, the combustion vibration estimating apparatus including:

an inputting unit which inputs plant data and weather data;

an internal pressure variation estimating unit which estimates internal pressure variation of the combustor from the plant data and weather data which are inputted from the inputting unit; and

an outputting unit which outputs internal pressure variation estimation result estimated by the internal pressure variation estimating unit.

Claim 18 (Previously Presented) The plant according to claim 17, wherein the combustion vibration estimating apparatus further comprises a database which stores the plant data and weather data inputted by the inputting unit, wherein the internal pressure variation estimating unit estimates the estimated value of the internal pressure variation by data of latest time stored in the database.

Claim 19 (Original) A plant comprising:

a combustor, and

a combustion vibration estimating apparatus which constructs a mathematical model which explains internal pressure variation and an NOx discharge amount from plant data and weather data which are obtained with combustion in the combustor, and obtains and outputs a combustion vibration-prone to be generated region and a combustion vibration-less prone to be generated region based on the constructed mathematical model.

Claim 20 (Original) A plant comprising:

a combustor, and

a combustion vibration estimating apparatus having an inputting unit which inputs limiting values of plant data, weather data obtained with combustion in the combustor and

internal pressure variation, as well as a restricting value of NOx, an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the plant data and weather data input from the inputting unit, a NOx discharge amount characteristic grasping unit which makes an NOx discharge amount into a mathematical model from the input plant data and weather data input from the inputting unit, a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, and applies a restricting value of the NOx to the mathematical model obtained by the NOx discharge amount characteristic grasping unit, thereby obtaining a region where the NOx discharge amount is equal to or less than the restricting value and the combustion vibration is less prone to be generated, and an outputting unit which outputs a safe region estimation result by the safe region estimating unit.

Claim 21 (Original) A plant comprising:

a combustor, and

a combustion vibration estimating apparatus which constructs a mathematical model for explaining internal pressure variation, NOx and a CO discharge amount from plant data and weather data obtained with combustion in the combustor, a combustion vibration-prone to be generated region and a combustion vibration-less prone to be generated region are obtained based on the constructed mathematical model and are output.

Claim 22 (Original) A plant comprising:

a combustor, and

a combustion vibration estimating apparatus having an inputting unit which inputs limiting values of plant data, weather data obtained with combustion in the combustor and

internal pressure variation, as well as restricting values of NOx and CO, an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the plant data and weather data input by the inputting unit, a NOx discharge amount characteristic grasping unit which makes an NOx discharge amount into a mathematical model from the plant data and weather data input by the inputting unit, a CO discharge amount characteristic grasping unit which makes an CO discharge amount into a mathematical model from the plant data and weather data input by the inputting unit, a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, applies a restricting value of the NOx to the mathematical model obtained by the NOx discharge amount characteristic grasping unit, and applies a restricting value of the CO to the mathematical model obtained by the CO discharge amount characteristic grasping unit, thereby obtaining a region where the NOx discharge amount and the CO discharge amount are equal to or less than the restricting value and the combustion vibration is less prone to be generated, and an outputting unit which outputs a safe region estimation result by the safe region estimating unit.

Claim 23 (Original) A plant comprising:

a combustor, and

a combustion vibration estimating apparatus having inputting unit which inputs limiting values of plant data, weather data obtained with combustion in the combustor and internal pressure variation, as well as restricting values of NOx and CO, a focus setting unit which selects data used for making a mathematical model from the plant data and weather data input by the inputting unit, an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the

plant data and weather data selected by the focus setting unit, a discharge amount characteristic grasping unit which makes NOx and CO discharge amounts into a mathematical model from the plant data and weather data selected by the focus setting unit, a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, applies restricting values of the NOx and CO to the mathematical models obtained by the NOx and CO discharge amount characteristic grasping unit, thereby obtaining a region where the NOx discharge amount and the CO discharge amount are equal to or less than the restricting value and the combustion vibration is less prone to be generated, and an outputting unit which outputs a safe region estimation result by the safe region estimating unit.

Claim 24 (Original) The plant according to claim 23, wherein the focus setting unit selects the plant data and weather data input from the inputting unit based on a region or a setting mode designated by the inputting unit.

Claim 25 (Original) A plant comprising:

a combustor, and

a combustion vibration estimating apparatus having an inputting unit which inputs limiting values of plant data, weather data obtained with combustion in the combustor and internal pressure variation, as well as restricting values of NOx and CO, a focus setting unit which selects data used for making a mathematical model from the plant data and weather data input by the inputting unit, an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the plant data and weather data selected by the focus setting unit, a discharge amount characteristic grasping unit which makes NOx and CO discharge amounts into a

mathematical model from the plant data and weather data selected by the focus setting unit, a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, applies restricting values of the NOx and CO to the mathematical models obtained by the NOx and CO discharge amount characteristic grasping unit, thereby obtaining a region where the NOx discharge amount and the CO discharge amount are equal to or less than the restricting value and the combustion vibration is less prone to be generated, a proposed adjustment generating unit which obtains a point to be measured next, using a safe region estimation result by the safe region estimating unit, and an outputting unit which outputs a safe region estimation result by the safe region estimating unit and a point to be measured by the proposed adjustment generating unit.

Claim 26 (Original) The plant according to claim 25, wherein the focus determining unit determines a next focus based on the mathematical model obtained based on plant data and weather data selected by determination of a last focus.

Claim 27 (Previously Presented) A gas turbine plant comprising:

a gas turbine having a combustor, a compressor for supplying compressed air to the combustor, an inlet guide blade for supplying air to the compressor, a turbine which is connected to the compressor and is rotated by emission gas of the combustor, a main fuel flow rate control valve for controlling a main flame fuel supply amount which is main flame of combustion in the combustor, a pilot fuel flow rate control valve for controlling a pilot flame fuel supply amount which holds the main flame, and a combustor bypass valve for supplying, to the turbine, the compressed air supplied from the compressor bypassing the combustor, and

a combustion vibration estimating apparatus that estimates possibility of combustion vibration to occur using a mathematical model representing internal pressure variation employing plant data and weather data as variables, and estimates and outputs a possible combustion vibration-prone region and a possible combustion vibration-less prone region based on the mathematical model.

Claim 28 (Previously Presented) A gas turbine plant comprising:

a gas turbine having a combustor, a compressor for supplying compressed air to the combustor, an inlet guide blade for supplying air to the compressor, a turbine which is connected to the compressor and is rotated by emission gas of the combustor, a main fuel flow rate control valve for controlling a main flame fuel supply amount which is main flame of combustion in the combustor, a pilot fuel flow rate control valve for controlling a pilot flame fuel supply amount which holds the main flame, and a combustor bypass valve for supplying, to the turbine, the compressed air supplied from the compressor without through the combustor; and

a combustion vibration estimating apparatus that estimates possibility of combustion vibration to occur using data at present, and that outputs a result estimated thereby for controlling a combustor not to cause the combustion vibration, the combustion vibration estimating apparatus comprising:

an inputting unit which inputs plant data, weather data and limiting value of internal pressure variation obtained with combustion in the combustor;

an internal pressure variation characteristic grasping unit which sets up a mathematical model representing internal pressure variation of a combustor using the inputted plant data and weather data as variables;

a combustion vibration region estimating unit that estimates possibility of

combustion vibration to occur using the mathematical model by applying the limiting value of the internal pressure variation to the mathematical model to estimate a possible combustion vibration-prone region; and

an outputting unit which outputs the possible combustion vibration-prone region estimated by the combustion vibration region estimating unit.

Claim 29 (Previously Presented) The gas turbine plant according to claim 28, wherein the combustion vibration estimating apparatus further comprises a database which stores the plant data and the weather data inputted by the inputting unit into a time series, wherein the internal pressure variation characteristic grasping unit obtains data from the database to set up a mathematical model representing the internal pressure variation of the combustor.

Claim 30 (Previously Presented) A gas turbine plant comprising:

a gas turbine having a combustor, a compressor for supplying compressed air to the combustor, an inlet guide blade for supplying air to the compressor, a turbine which is connected to the compressor and is rotated by emission gas of the combustor, a main fuel flow rate control valve for controlling a main flame fuel supply amount which is main flame of combustion in the combustor, a pilot fuel flow rate control valve for controlling a pilot flame fuel supply amount which holds the main flame, and a combustor bypass valve for supplying, to the turbine, the compressed air supplied from the compressor without through the combustor; and

a combustion vibration estimating apparatus that estimates possibility of combustion vibration to occur using data at present, and that outputs a result estimated thereby for controlling a combustor not to cause the combustion vibration, the combustion vibration estimating apparatus comprising:

an inputting unit which inputs plant data and weather data;

an internal pressure variation estimating unit which estimates internal pressure variation of the combustor from the plant data and weather data which are input from the inputting unit; and

an outputting unit which outputs internal pressure variation estimation result estimated by the internal pressure variation estimating unit.

Claim 31 (Previously Presented) The gas turbine plant according to claim 30, wherein the combustion vibration estimating apparatus further comprises a database which stores in the time series the plant data and weather data inputted by the inputting unit, wherein the internal pressure variation estimating unit estimates the estimated value of the internal pressure variation by data of latest time stored in the database.

Claim 32 (Original) A gas turbine plant comprising:

a gas turbine having a combustor, a compressor for supplying compressed air to the combustor, an inlet guide blade for supplying air to the compressor, a turbine which is connected to the compressor and is rotated by emission gas of the combustor, a main fuel flow rate control valve for controlling a main flame fuel supply amount which is main flame of combustion in the combustor, a pilot fuel flow rate control valve for controlling a pilot flame fuel supply amount which holds the main flame, and a combustor bypass valve for supplying, to the turbine, the compressed air supplied from the compressor without through the combustor, and

a combustion vibration estimating apparatus which constructs a mathematical model which explains internal pressure variation and an NOx discharge amount from plant data and weather data which are obtained with combustion in the combustor, and obtains and outputs a

combustion vibration-prone to be generated region and a combustion vibration-less prone to be generated region based on the constructed mathematical model.

Claim 33 (Original) A gas turbine plant comprising:

a gas turbine having a combustor, a compressor for supplying compressed air to the combustor, an inlet guide blade for supplying air to the compressor, a turbine which is connected to the compressor and is rotated by emission gas of the combustor, a main fuel flow rate control valve for controlling a main flame fuel supply amount which is main flame of combustion in the combustor, a pilot fuel flow rate control valve for controlling a pilot flame fuel supply amount which holds the main flame, and a combustor bypass valve for supplying, to the turbine, the compressed air supplied from the compressor without through the combustor, and

a combustion vibration estimating apparatus having an inputting unit which inputs limiting values of plant data, weather data obtained with combustion in the combustor and internal pressure variation, as well as a restricting value of NOx, an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the plant data and weather data input from the inputting unit, a NOx discharge amount characteristic grasping unit which makes an NOx discharge amount into a mathematical model from the input plant data and weather data input from the inputting unit, a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, and applies a restricting value of the NOx to the mathematical model obtained by the NOx discharge amount characteristic grasping unit, thereby obtaining a region where the NOx discharge amount is equal to or less than the restricting value and the

combustion vibration is less prone to be generated, and an outputting unit which outputs a safe region estimation result by the safe region estimating unit.

Claim 34 (Original) A gas turbine plant comprising:

a gas turbine having a combustor, a compressor for supplying compressed air to the combustor, an inlet guide blade for supplying air to the compressor, a turbine which is connected to the compressor and is rotated by emission gas of the combustor, a main fuel flow rate control valve for controlling a main flame fuel supply amount which is main flame of combustion in the combustor, a pilot fuel flow rate control valve for controlling a pilot flame fuel supply amount which holds the main flame, and a combustor bypass valve for supplying, to the turbine, the compressed air supplied from the compressor without through the combustor, and

a combustion vibration estimating apparatus which constructs a mathematical model for explaining internal pressure variation, NOx and a CO discharge amount from plant data and weather data obtained with combustion in the combustor, a combustion vibration-prone to be generated region and a combustion vibration-less prone to be generated region are obtained based on the constructed mathematical model and are output.

Claim 35 (Original) A gas turbine plant comprising:

a gas turbine having a combustor, a compressor for supplying compressed air to the combustor, an inlet guide blade for supplying air to the compressor, a turbine which is connected to the compressor and is rotated by emission gas of the combustor, a main fuel flow rate control valve for controlling a main flame fuel supply amount which is main flame of combustion in the combustor, a pilot fuel flow rate control valve for controlling a pilot flame fuel supply amount which holds the main flame, and a combustor bypass valve for

supplying, to the turbine, the compressed air supplied from the compressor without through the combustor, and

a combustion vibration estimating apparatus having an inputting unit which inputs limiting values of plant data, weather data obtained with combustion in the combustor and internal pressure variation, as well as restricting values of NOx and CO, an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the plant data and weather data input by the inputting unit, a NOx discharge amount characteristic grasping unit which makes an NOx discharge amount into a mathematical model from the plant data and weather data input by the inputting unit, a CO discharge amount characteristic grasping unit which makes an CO discharge amount into a mathematical model from the plant data and weather data input by the inputting unit, a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, applies a restricting value of the NOx to the mathematical model obtained by the NOx discharge amount characteristic grasping unit, and applies a restricting value of the CO to the mathematical model obtained by the CO discharge amount characteristic grasping unit, thereby obtaining a region where the NOx discharge amount and the CO discharge amount are equal to or less than the restricting value and the combustion vibration is less prone to be generated, and an outputting unit which outputs a safe region estimation result by the safe region estimating unit.

Claim 36 (Original) A gas turbine plant comprising:

a gas turbine having a combustor, a compressor for supplying compressed air to the combustor, an inlet guide blade for supplying air to the compressor, a turbine which is connected to the compressor and is rotated by emission gas of the combustor, a main fuel

flow rate control valve for controlling a main flame fuel supply amount which is main flame of combustion in the combustor, a pilot fuel flow rate control valve for controlling a pilot flame fuel supply amount which holds the main flame, and a combustor bypass valve for supplying, to the turbine, the compressed air supplied from the compressor without through the combustor, and

a combustion vibration estimating apparatus having an inputting unit which inputs limiting values of plant data, weather data obtained with combustion in the combustor and internal pressure variation, as well as restricting values of NOx and CO, a focus setting unit which selects data used for making a mathematical model from the plant data and weather data input by the inputting unit, an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the plant data and weather data selected by the focus setting unit, a discharge amount characteristic grasping unit which makes NOx and CO discharge amounts into a mathematical model from the plant data and weather data selected by the focus setting unit, a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, applies restricting values of the NOx and CO to the mathematical models obtained by the NOx and CO discharge amount characteristic grasping unit, thereby obtaining a region where the NOx discharge amount and the CO discharge amount are equal to or less than the restricting value and the combustion vibration is less prone to be generated, and an outputting unit which outputs a safe region estimation result by the safe region estimating unit.

Claim 37 (Original) The gas turbine plant according to claim 36, wherein the focus setting unit selects the plant data and weather data input from the inputting unit based on a region or a setting mode designated by the inputting unit.

Claim 38 (Original) A gas turbine plant comprising:

a gas turbine having a combustor, a compressor for supplying compressed air to the combustor, an inlet guide blade for supplying air to the compressor, a turbine which is connected to the compressor and is rotated by emission gas of the combustor, a main fuel flow rate control valve for controlling a main flame fuel supply amount which is main flame of combustion in the combustor, a pilot fuel flow rate control valve for controlling a pilot flame fuel supply amount which holds the main flame, and a combustor bypass valve for supplying, to the turbine, the compressed air supplied from the compressor without through the combustor, and

a combustion vibration estimating apparatus having an inputting unit which inputs limiting values of plant data, weather data obtained with combustion in the combustor and internal pressure variation, as well as restricting values of NOx and CO, a focus setting unit which selects data used for making a mathematical model from the plant data and weather data input by the inputting unit, an internal pressure variation characteristic grasping unit which makes internal pressure variation of a combustor into a mathematical model from the plant data and weather data selected by the focus setting unit, a discharge amount characteristic grasping unit which makes NOx and CO discharge amounts into a mathematical model from the plant data and weather data selected by the focus setting unit, a safe region estimating unit which applies a limiting value of the internal pressure variation to the mathematical model obtained by the internal pressure variation characteristic grasping unit, applies restricting values of the NOx and CO to the mathematical models obtained by the NOx and CO discharge amount characteristic grasping unit, thereby obtaining a region where the NOx discharge amount and the CO discharge amount are equal to or less than the restricting value and the combustion vibration is less prone to be generated, a proposed

adjustment generating unit which obtains a point to be measured next, using a safe region estimation result by the safe region estimating unit, and an outputting unit which outputs a safe region estimation result by the safe region estimating unit and a point to be measured by the proposed adjustment generating unit.

Claim 39 (Original) The gas turbine plant according to claim 38, wherein the focus determining unit determines a next focus based on the mathematical model obtained based on plant data and weather data selected by determination of a last focus.